

REMARKS

Applicants respectfully request that the foregoing amendments to claims 3-5, 9-12, 15-18 and 20 be entered in order to avoid this application incurring a surcharge for the presence of one or more multiple dependent claims. A marked-up copy of the amended claims is enclosed in Appendix I.

Early examination is respectfully requested.

Respectfully submitted,

D.W. Woodward

David W. Woodward
Registration No. 35,020
Attorney for Applicant

POWELL, GOLDSTEIN, FRAZER & MURPHY, LLP

P.O. Box 97233
Washington, D.C. 20090-7223
202-347-0066

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DWW/yea

APPENDIX

Changes in the Claims:

The following are marked-up versions of the amended claims:

3. A method according to claim 1 or 2 including the step of:

uniformly accelerating the molten diecasting metal as it flows along the melt path, the uniform acceleration of the diecasting metal being enabled by uniformly reducing the cross-sectional area of the channels of the melt path in the direction of flow.

4. A method according to ~~any preceding claim 2~~ including the step of conveying the shot of molten diecasting metal in a smooth curve through an angle of approximately 90⁰ while it is within the transition channel.

5. A method according to ~~any preceding claim 2~~ wherein the transition channel is split so that a first part thereof is located by the fixed die and a second part thereof is located by the moving die, the method including the step of:

controlling the temperature of the second part of the transition channel independently of the temperature of the moving die so as to ensure that the freeze-point of the diecasting metal occurs within the transition channel after a shot.

9. A die set according to ~~any one of claims 6 to 8~~ claim 6 wherein the cross-sectional area of the sprue channel reduces uniformly in the direction of melt flow so that the velocity of the melt increases uniformly within the sprue channel during a shot.

10. A die set according to ~~any one of claims 6 to 8~~ claim 6 wherein the cross-sectional area of the portion of the melt path which comprises the sprue channel, the transition channel and the runner channel reduces uniformly in the direction of melt flow so that the velocity of the melt increases uniformly within said melt path.

11. A die set according to ~~any one of claims 6 to 10~~ claim 6 wherein said angle is substantially 90°.

12. A die set according to ~~any one of claims 6 to 11~~ claim 6 having an ejector pin slidingly located within one of said dies for movement into the transition channel so as to be adapted to eject diecasting metal that solidifies within the transition channel after a shot and after separation of the movable and fixed dies.

15. A sprue insert-set according to claim 13 or 14 wherein said angle is substantially 90° and the first curved groove subtends substantially 90°.

16. A sprue insert-set according to ~~any one of claims 13 to 15~~ claim 13 wherein the sprue body insert includes temperature sensor means.

17. A sprue insert-set according to ~~any one of claims 13 to 16~~ claim 13 wherein the sprue body insert includes thermal insulation encompassing the heater means so as to mitigate the loss of heat from the sprue insert to the fixed die when the sprue insert-set is in use.

18. A sprue insert-set according to ~~any one of claims 13 to 17~~ claim 13 including:
a sprue tip insert adapted for mounting within the moving die, said tip insert having an inner end
forming said second curved groove.

20. A sprue insert-set according to claim 18 or 19 wherein said tip insert includes
temperature sensor means and thermal insulation adapted to mitigate thermal transfer between
said second insert and the moving die.